NOTE XIV.

DIAGNOSES OF NEW SPECIES OF MACRUROUS DECAPOD CRUSTACEA FROM THE „SIBOGA-EXPEDITION"

BY

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III. [1]

This paper contains the diagnoses of 11 new Species and of 2 new Varieties, all belonging to the genus *Alpheus* Fabr. The Macrura, collected by the „Siboga-Expedition", are at present at Ierseke, but will be transferred to the Zoölogical Museum of the University of Amsterdam, as soon as they have been worked out.

1. *Alpheus Hailstonei* Cout., var. *laetabilis*, n.

Station 49*a*. Lat. 8°23'.5 S., long. 119°4'.6 E. Sapeh-strait. Depth 70 M.
Station 65*a*. Lat. 7°0' S., long. 120°34'.5 E. Depth from 400—120 M.
Station 154. Lat. 0°7'.2 N., long. 130°25'5 E. Depth 83—59 M.
Station 240. Banda-anchorage. Depth from 9—36 M.
Station 282. Lat. 8°25'.2 S., long. 127°18'.4 E. Anchorage between Nusa Besi and the N. E. point of Timor. Depth 27—54 M.
Station 285. Lat. 8°39'.1 S., long. 127°4'.4 E. Anchorage South coast of Timor. Depth 34 M.

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[1] The first Part, containing the diagnoses of 28 new Species and of 1 new Variety, was published in 1905 in the „Tijdschrift der Ned. Dierk. Vereen." (2) T. IX, pp. 587—614, the second Part with 19 new Species and 1 new Variety in 1907 in the „Notes from the Leyden Museum", Vol. XXIX, pp. 127—147.

Station 303. Haingsisi, Samau-island. Depth up to 36 M.
Station 310. Lat. 8°30′ S., long. 119°7′.5 E. Depth 73 M.

This variety differs from the typical species inhabiting the Laccadive Archipelago by the dactyli of the three posterior legs that are armed, at about the distal fourth of their posterior margin, with a small accessory claw, whereas their anterior margin, a little farther distant from the extremity, carries a small tooth or spine, lying contiguous to that margin and at the base of which a few setae are inserted. Upper margin of meropodite of larger chelipede with 4 or 5, inner margin with 8 or 9 movable spinules; larger chela in adult specimens slightly broader (higher) than in the typical form. Fourth joint of carpus of 2nd legs distinctly shorter than the 2nd and in a less degree also than the 5th. Propodites of 3rd and 4th legs $1^1/_3$—$1^1/_2$ times as long as the carpopodites.

Length 15 mm.

2. *Alpheus Hailstonei* Cout., var. *assimulans*, n.
Station 260. Lat. 5°36′.5 S., long. 132°55′.2 E. 2,3 miles N. 63° W. from the North point of Nuhu Jaan, Kei-islands. Depth 90 M.
Station 282. Lat. 8°25′.2 S., long. 127°18′.4 E. Anchorage between Nusa Besi and the N. E. point of Timor. Depth 27—54 M.
Station 305. Mid-channel in Solor-strait off Kampong Menanga. Depth 113 M.

Closely related to the typical species and perhaps not different at all.

Second joint of antennular peduncle one and a half as long as the visible part of the 1st and $2^1/_2$-times as long as the 3rd, stylocerite reaching to the end of 1st joint; carpocerite just as long as antennular peduncle, scaphocerite also as long as the latter or hardly longer. Inner margin of meropodite of larger chelipede with 4—6 small spinules;

larger chela in adult individuals broader (or higher) than in the typical species, the proportion between length and breadth being in the adult male 2,58, in the adult female 2,76, in the typical species, however, 3,33.

Propodites of 3rd legs, in adult individuals, but one fourth longer than the carpopodites; dactyli without accessory claw on the posterior margin, but with a tooth on the anterior, lying close to it, as in the var. *laetabilis*, which tooth probably also occurs in the typical species, as it may easily be overlooked.

Length 19 mm.

3. *Alpheus facetus*, n. sp.

Station 273. Anchorage off Pulu Jedan, East coast of Aru-islands (Pearl-banks). Depth 13 M.

A new species of the group „*macrochirus*" Cout., closely related to *A. gracilis* Heller and *A. splendidus* Cout.

Rostrum acute, projecting straight foreward, as long as 1st joint of antennular peduncle, narrow, rostral carina not compressed, obtuse, prominent and reaching almost to the middle of the carapace. Orbital spines acute, much shorter than the rostrum, arising from the anterior margin of the orbital hoods, not, as in *A. splendidus*, from their upper surface. Telson one and a half as long as broad, its posterior margin without dentiform prominence. Movable spine at the postero-lateral angle of the exopodite of caudal fan black.

Second joint of antennular peduncle a little shorter than the visible part of the 1st, 3rd joint one sixth shorter than 2nd; stylocerite reaching to the middle of 2nd joint. Carpocerite longer than the antennular peduncle, stout; spine of basicerite almost as long as 1st joint of the antennular peduncle.

Larger chela almost 3-times as long as high, fingers two fifths of the palm, lower border entire, rounded, upper border with a longitudinal groove, bounded by two ridges.

Smaller chela 5-times as long as high, fingers just as long as the palm, which is nearly cylindrical, smooth and entire.

Carpus of 2nd legs with the 2nd joint half as long as the 1st, the 5th slightly longer than the 2nd. Meropodite of 3rd legs unarmed, 5-times as long as broad, carpus half as long; propodite 1,6-times as long as the carpus, dactylus hardly one third of the propodite, with no accessory claw on the posterior border, but with a minute tooth at the distal third of the anterior, contiguous to it.

Length 18 mm.

4. *Alpheus consobrinus*, n. sp.

Station 78. Lumu-Lumu-shoal, Borneo-bank. Reef.
Station 96. South-east side of Pearl-bank, Sulu-archipelago. Depth 15 M.
Station 115. East side of Pajunga-island, Kwandang-bay. Reef-exploration.
Station 125. Anchorage off Sawan, Siau-island. Depth 27 M. Reef-exploration.
Station 213. Saleyer-anchorage and Surroundings. Depth up to 36 M.
Station 299. Lat. 10°52'.4 S., long. 123°1'.1 E. Boeka- or Cyrus-bay, South coast of Rotti-island. Depth up to 36 M.
Station 315. Anchorage east of Sailus Besar, Paternoster-islands. Depth up to 36 M.

A new species of the group „*crinitus*" Cout. s. s., closely related to *A. bucephalus* Cout. and *A. clypeatus* Cout.

Rostrum, frontal margin of the carapace, antennular and antennal peduncles as in *A. bucephalus*, but the basicerite is armed with a small, infero-lateral spinule and scaphocerite slightly longer than carpocerite. Telson a little narrower posteriorly than in *A. bucephalus*, its length being in proportion to the breadth of posterior margin as $9 : 3^1/_3$, in *A. bucephalus* as $9 : 4$.

Meropodite of larger chelipede of the male one and a half as long as broad, inner margin with acute tooth near the far end; chela a little less high in proportion to its length, but for the rest as in *A. bucephalus.* Meropodite of larger chelipede of female twice as long as broad, chela considerably smaller than in the male, little more than half as long.

Chela of smaller chelipede of the male resembling that of *A. clypeatus*, fingers slightly longer than the palm; dactylus much broadened, half as broad as long, fringed with hairs along its inner (upper) edge. Inner (upper) surface of the chela hairy, 3-times as long as broad.

Chela of smaller chelipede of the female similar to that of *A. bucephalus*, the palm being in proportion to the fingers as 13 : 10.

Carpus of 2nd legs as in *A. bucephalus*, 2nd joint in the male almost 3-times, in the female somewhat more than twice as long as the 1st, 5th joint in the male slightly longer than the 1st, in the female both of equal length.

Legs of 3rd and 4th pairs as in *A. bucephalus.*

Length of male 14,5 mm., of adult female 15,5 mm.

5. *Alpheus bicostatus*, n. sp.

Station 37. Sailus Ketjil, Paternoster-islands. Depth 27 M. and less.

Station 99. Lat. 6°7'.5 N., long. 120°26' E. Anchorage off North-Ubian. Depth 16—23 M.

Station 205. Buton-strait, between floating seaweed.

A new species of the group „*insignis*" Cout., closely related to *A. bidens* (Oliv.) and *A. cristatus* Cout.

Rostrum acute, reaching about to the end of 1st joint of antennular peduncle, rostral carina subacute or obtuse, little prominent, without the teeth characteristic of *A. cristatus*, but with a very small tubercle immediately behind the base of the orbits, as in *A. bidens.* Midway between this tubercle and the frontal margin, at either side, a thin lamellar crest with rather sharp edge passes from the rostral carina obliquely backward, about to the level of the small, median tubercle. Orbits prominent, as in *A. bidens*, grooves between the orbits and the rostral carina broad, moderately deep. Frontal margin at either side, close to the orbits, with a slender spine as in *A. cristatus*, these spines about one third the length of the rostrum proper.

Carapace with an acute, well-developed, though small, pterygostomian spine.

Antennal and antennular peduncles and thoracic legs similar to those of *A. bidens*, but the dactylus of the smaller chelipede of the male, which also presents the *Balaeniceps*-shape, appears broader in proportion to its length and more flattened, whereas the palm presents no trace of a transverse groove.

Length of male 18,5 mm., of female 20,5 mm.

6. *Alpheus praedator*, n. sp.
Station 181 or 231. Ambon. Reef-exploration.

Another new species of the group „*insignis*" Cout., closely related to *A. bidens* (Oliv.).

Rostrum acute, narrow, reaching to the middle of 2nd joint of antennular peduncle. Rostral carina interrupted, with a small, obtuse tubercle just behind the interruption, as in *A. bidens*; interorbital part of rostral carina strongly compressed, sharp-edged and rising, between the corneae and the interruption, to a high, arcuate crest. The obtuse tubercle is continued in a straight, obtuse crest, that reaches to the posterior third of the carapace, bounded at either side by a shallow groove or depression, that ends abruptly at the posterior extremity of the crest. At either side of the rostral carina, at the base of the eye-hoods, a pointed tooth, broad at its base, as in *A. bidens*; orbits and frontal margin also as in this species.

Second joint of antennular peduncle one and a half as long as thick, little longer than the two other joints that are of equal length; 1st joint with 2 spines as in *A. bidens*.

Larger chela as in *A. bidens*, but the groove on the upper border near the dactylus is continued on the outer (lower) surface of the palm until near the lower border and from the middle of this groove a broad, though shallow depression extends almost to the middle of the outer surface of the palm; as the fingers, that measure two fifths of the length of the chela, are still more turned outward than the palm, the upper border of the dactylus is almost situated inferiorly. Lower border of the immobile finger grooved longitudinally.

Legs of 3rd and 4th pair of a stouter shape than those of *A. bidens*, but for the rest resembling them. So e. g. are the meropodites of the 3rd legs, armed with a strong, acute tooth, 4-times as long as broad in the middle and the propodites $4^1/_2$-times as long as broad.

One specimen, perhaps a young female, 14 mm. long.

7. *Alpheus tenuicarpus*, n. sp.

Station 114. Lat. 0°58'.5 N., long. 122°55' E. Kwandang-bay-entrance. Depth 75 M.

Station 311. Sapeh-bay, East coast of Sumbawa. Depth up to 36 M.

A species of small size, pertaining to the group „*insignis*" Cout. or „*brevirostris*" de M. and related to *A. paralpheopsides* Cout.

Frontal margin exactly as in *A. paralpheopsides*, rostrum acute, almost reaching to the middle of 1st joint of antennular peduncle, rostral carina sharp but little prominent and not reaching beyond the bases of the orbital hoods. Telson narrow, a little more than twice as long as broad, spinules on the upper surface large and situated close to the lateral margins.

Second joint of antennular peduncle twice as long as thick, just as long as the visible part of the 1st and one and a half as long as the 3rd joint; carpocerite longer than antennular peduncle, terminal spine of scaphocerite reaching but little beyond the blade and extending almost to the end of the carpocerite.

Larger chela of the male 3-times as long as high, half as thick as high, without transverse groove on the upper border, fingers almost half as long as the palm. Meropodite $3^1/_2$-times as long as broad, upper margin unarmed, infero-internal margin with 4 spinelets and a small tooth at the end. Fingers of smaller chela in the male just as long, in the female a little ($^1/_7$) longer than the palm, which is 3-times as long as high; dactylus in the male *Balaeniceps*-shaped.

Second joint of carpus of 2nd legs one third longer than 1st joint, the three last joints of equal length, half as long as 1st; carpus slender and thin, the 2nd joint 9-times as long as thick.

Meropodite of 3rd legs slender, 8-times as long as broad, unarmed; carpus half as long, propodite 1,2-times as long as carpus, somewhat narrowing towards distal extremity; dactylus half as long as the propodite.

Length of male 13 mm., of egg-bearing female 13,5 mm.

8. *Alpheus rapacida*, n. sp.
Station 279. Ruma-Kuda-bay, Roma-island. Depth 36 M.
Station 313. Anchorage east of Dangar Besar, Saleh-bay. Depth up to 36 M.

Probably a new species of the group „*brevirostris*". Closely related to *A. rapax* de Haan (nec Fabr.), but distinguished by its much smaller size, the male being 22,5 mm. long, the egg-bearing female 18 mm.

Rostrum acute, reaching about to the middle of the visible part of 1st joint of antennular peduncle, continued in a carina, which, rather sharp between the orbital hoods, becomes obtuse behind them, though it may be followed almost to the middle of the carapace.

Second joint of antennular peduncle which is as long as the carpocerite, little (one fourth) longer than the visible part of the 1st; 3rd joint half as long as second. Scaphocerite 3-times as long as broad, distinctly longer than the peduncles; spine on the basicerite small.

Larger chela of the male finely granular both on the outer and inner side, slender, almost 4-times as long as high, without ridges on the outer surface; upper border of the palm without a transverse groove near the dactylus. Chela compressed, half as thick as high, fingers little more than half as long as the palm. Smaller chela of the male resembling that of *A. rapax* de Haan (vide de Man, in: Trans. Linn. Soc. 2nd Ser. Vol. IX, Part 11, 1907, Pl. XXXIII, Fig. 52), not *Balaeniceps*-shaped; fingers twice as long as the palm, gaping; that of the female differs by the palm being slightly longer in proportion to the fingers.

Second joint of carpus of 2nd legs little ($\frac{1}{5}-\frac{1}{7}$) longer than 1st, chela just as long as 1st joint. Meropodite of 3rd legs unarmed, 5-times as long as broad; propodite one and a half as long as the unarmed carpus, slightly curved, slender, narrowing towards distal extremity, with only 3 or 4 small spinules on its proximal half, both margins beset with long setae; dactylus two thirds of the propodite, slightly arcuate, lanceolate, in the middle much broader than high.

9. *Alpheus lepidus*, n. sp.
Station 51. Madura-bay and other localities in the southern part of Molo-strait. Depth 54—90 M.
Station 114. Lat. 0° 58′. 5 N., long. 122° 55′ E. Kwandang-bay-entrance. Depth 75 M.

A new species of small size of the group „*brevirostris*" de M., closely related to *A. rapacida*, n. sp.

Rostrum acute, reaching a little beyond the middle of the visible part of 1st joint of antennular peduncle, as broad at its base as it is long, continued in a narrow, sharp and prominent carina that extends backward to behind the middle of carapace. Telson narrow, twice as long as broad anteriorly.

Second joint of antennular peduncle one third longer than the visible part of the 1st, twice as long as thick;

carpocerite little longer than antennular peduncle, spine on the basicerite small, shorter than rostrum; scaphocerite 3-times as long as broad, just reaching beyond the carpocerite, terminal spine extending with one third of its length beyond the tip of the blade. Terminal joint of external maxillipedes $4^1/_2$-times as long as broad.

Meropodite of larger chelipede of female 3-times as long as broad, upper margin unarmed, infero-external margin finely serrulate, infero-internal with 4 movable spinules and, at the extremity, with a small acute tooth. Chela of female 3-times as long as high, half as thick as high; palm without a transverse groove on the upper border, twice as long as the fingers and appearing finely granular under a lens, the granules acute.

Second joint of carpus of 2nd legs twice or a little more than twice as long as 1st joint, chela one and a half as long as 1st joint; carpus more slender than that of *A. rapacida.* Meropodite of 3rd legs unarmed, more slender than that of *A. rapacida,* 6-times as long as broad, following joints about as in this species.

Largest specimen 17 mm. long, egg-bearing females 14 or 16 mm.

10. *Alpheus sibogae,* n. sp.

Station 49*a*. Lat. 8° 23'. 5 S., long. 119° 4'. 6 E. Sapeh-strait. Depth 70 M.

Station 51. Madura-bay and other localities in the southern part of Molo-strait. Depth from 54—90 M.

Station 305. Mid-channel in Solor-strait off Kampong Menanga. Depth 113 M.

A remarkable new species of the group *„brevirostris"* de M., of small size, the male being 12,5 mm. long, the egg-bearing female 13,5 mm.

Rostrum acute, narrow, reaching to the distal third of the visible part of 1st joint of antennular peduncle, rostral carina sharp, continued to just behind the middle of the carapace and presenting, a little posterior to the orbital hoods, a small obtuse tubercle or prominence. Orbits rounded, unarmed. Telson narrow, twice as long as broad anteriorly.

Second joint of antennular peduncle slender, 4-times as long as thick, one third longer than the visible part of 1st joint. Carpocerite and scaphocerite as long as antennular peduncle, scaphocerite narrow, 4-times as long as broad, its outer margin concave.

Meropodite of larger chelipede of the male 3-times as long as broad, upper margin coarsely denticulate or tuberculate along its whole length, unarmed at extremity, infero-internal margin with 4 acicular spinules and terminating in an acute tooth. Chela turned outward, 3-times as long as high, and about half as thick as high; upper margin of the palm, which is almost 3-times as long as the fingers, rounded, without a transverse groove; outer surface with a moderately deep groove, rather broad in the middle, narrow proximally, extending from the carpal articulation to the fingers and bounded inferiorly by a ridge that runs parallel with the rounded lower margin of the palm.

Palm of smaller chelipede of the male hardly longer than the fingers, of the female a little shorter than the fingers, 3-times as long as high; upper border of the palm without a transverse groove, outer surface in the male with a shallow groove extending on its lower half from the carpal articulation to the fingers. Dactylus in the male *Balaeniceps*-shaped, presenting a spoon-like shape when looked at from above; in the female the fingers are slender, tapering and shutting together.

Carpus of 2nd legs slender, 2nd joint one fourth or one fifth longer than 1st, 4th joint slightly longer than the 3rd and the 5th that are subequal.

Meropodite of 3rd legs unarmed, slender, 8—9-times as long as broad; carpus slender, propodite one fourth longer than carpus, straight, not narrowing distally; dactylus two fifths of the propodite, slightly arcuate, not broader than high.

11. *Alpheus pubescens*, n. sp.

Station 43. Anchorage off Pulu Sarassa, Postillon-islands. Depth up to 30 M.
Station 60, Haingsisi, Samau-island, Timor. Depth 36 M.
Station 71. Makassar. Depth up to 32 M.
Station 77. Lat. 3° 27′ S., long. 117° 36′ E. Borneo-bank. Depth 59 M.
Station 162. Between Loslos and Broken-islands, west-coast of Salawatti. Depth 18 M.
Station 273. Anchorage off Pulu Jedan, East coast of Aru-islands. Depth 13 M.

A new species of small size of the group *„brevirostris"*, the male being 20,5 mm. long, the egg-bearing female 18 mm.

Carapace covered with a close, though short pubescence. Rostrum acute, narrow, reaching to the middle of the visible part of 1st joint of antennular peduncle, rostral carina continued to the middle of the carapace, obtuse in the male, a little sharper in the female, and separated from the rounded, unarmed orbital hoods by narrow grooves. Telson not yet twice as long as broad anteriorly, spinules of upper surface large.

Second joint of antennular peduncle a little ($\frac{1}{6}$—$\frac{1}{3}$) longer than the visible part of 1st, third joint three fifths of the 2nd; stylocerite pointed, reaching to the end of 1st joint. Carpocerite as long as scaphocerite, a little longer than the antennular peduncle; scaphocerite 3-times as long as broad, its outer margin concave, terminal spine reaching a little beyond the blade and curved inward.

Meropodite of both the larger and the smaller chelipede of the male $2^1/_2$-times as long as broad, upper margin unarmed, infero-internal margin with 4 or 5 small spinules and, at the extremity, with an acute tooth. Larger chela, in the male, rather high, 2,4-times as long as high, compressed, with a transverse groove on the flattened upper border, the outer margin of which is ridged; infero-external margin rather sharp. Fingers a little shorter than the palm. Smaller chela of the male resembling that of *A. djeddensis* Cout.

Smaller chela of the female 5,6-times as long as high, fingers one and a half as long as the palm, slender, shutting together.

Carpus of 2nd legs slender, 2nd joint one and a half to twice as long as the 1st, in the adult female both joints are nearly of equal length; three last joints of equal length.

Meropodite of 3rd legs of the male unarmed, 5-times as long as broad, carpus half as long; propodite straight, slightly narrowing distally, 1,3-times as long as the carpus and 5-times as long as broad; dactylus half as long as the propodite, not flattened, not broader than thick, simple, styliform.

12. *Alpheus savuensis*, n. sp.
Station 58. Anchorage off Seba, Savu.

A species, probably of small size, of the group „*brevirostris*" de M., closely related to *A. pubescens* n. sp., from which it differs by the following:

Carapace not pubescent, almost glabrous. Rostrum just as long as broad at its base, rostral carina rather sharp between the orbital hoods, almost indistinct posterior to them. Stylocerite not spiniform at its extremity, which is, however, acute, curved inward and reaches to the distal sixth of the visible part of 1st joint.

Palm of larger chela one and a half as long as the fingers, outer margin of lower border rounded, for the rest the chela resembles that of *A. pubescens*.

Merus of smaller chelipede of the male stouter, 2,3-times as long as broad, chela distinctly shorter than the carapace, stouter, only 3-times as long as high, upper border without a transverse groove, fingers slightly longer than the palm, for the rest as in *A. pubescens*.

Meropodite of 3rd legs stouter than that of *A. pubescens*, 4-times as long as broad; propodite also 4-times as long as broad, 1,2-times as long as the carpus; dactylus as in *A. pubescens*.

Length of the single male that was collected: 18,5 mm.

13. *Alpheus proseuchirus*, n. sp.

Station 114. Lat. 0° 58'. 5 N., long. 122° 55' E. Kwandang-bay-entrance. Depth 75 M.

Station 116. Lat. 0° 58'. 5 N., long. 122° 42'. 5 E. West of Kwandang-bay-entrance. Depth 72 M.

A new species of the group „*Edwardsii*" de M., closely related to *A. pareuchirus* Cout.

Rostrum as in *A. bis-incisus* de Haan, narrow-triangular, flattened above, about 3-times as long as broad at base, acute, reaching almost to the end of 1st joint of antennular peduncle, and beginning at the base of the eye-hoods. Orbital hoods rounded, unarmed. Second joint of antennular peduncle as long as the visible part of 1st joint, not longer; 3rd joint two thirds of the 2nd. Spine on the basicerite very small. Carpocerite as long as scaphocerite, slightly longer than antennular peduncle; scaphocerite almost 3-times as long as broad, terminal spine reaching only with one sixth of its length beyond the tip of the blade that extends to the extremity of the antennular peduncle, the spine of a less slender shape than in *A. pareuchirus*.

Larger chelipede as in *A. pareuchirus*, but the fingers shorter, measuring little more than one fourth the length of the chela; smaller chelipede of the female also as in that species, fingers in proportion to the palm as 7 : 5, their pointed extremities crossing one another.

First joint of carpus of 2nd legs one and a half as long as the 2nd joint, that is one and a half as long as the 5th.

Posterior legs still more slender than those of *A. pareuchirus*. Meropodite of 3rd legs 9-times as long as broad, unarmed at distal extremity, carpus three fifths of the meropodite, 8-times as long as thick distally, propodite 15 or 16-times as long as broad, one third longer than the carpus; dactylus simple, slender, one third of propodite.

Length of adult, egg-bearing female 25 mm.

Ierseke (Holland), July 1908.